

What is claimed is:

1. A gateway apparatus connected to at least one appliance through a first network, comprising:

appliance panel information inputting means for
5 acquiring appliance panel information indicating panel parts of the appliance on a display screen and an operational range of the panel parts;

gateway apparatus information memorizing means for
memorizing gateway apparatus information indicative of whether
10 or not a control command input from either one of the first network and a second network to the appliance is allowed to be accepted; and

appliance control command producing means for
determining, with reference to the gateway apparatus
15 information, whether or not the control command input is possible be accepted in cases where the control command input has been received through either one of the first and second networks, and for producing a control command toward the appliance on the basis of the appliance panel information in
20 cases where it is determined that the control command input is possible to be accepted.

2. The gateway apparatus according to claim 1, wherein
the gateway apparatus information memorizing means is
25 configured into means for memorizing the gateway apparatus information indicative of whether or not the control command input from the second network to the appliance is possible to be accepted, and

the appliance control command producing means is
30 configured into means for determining, with reference to the gateway apparatus information, whether or not the control command input is possible to be accepted in cases where the

control command input has been received through the second network, and for producing the control command toward the appliance on the basis of the appliance panel information in cases where it is determined that the control command input is possible to be accepted.

3. The gateway apparatus according to claim 1, wherein the appliance control command producing means is configured into means for determining, with reference to the gateway apparatus information, whether or not the control command input is possible to be accepted in cases where the control command input has been received without being routed through both of the first and second networks, and for producing the control command toward the appliance on the basis of the appliance panel information in cases where it is determined that the control command input is possible to be accepted.

4. The gateway apparatus according to claim 1, wherein the control command input to the appliance through the first network is an input from a remote control to control the appliance.

5. The gateway apparatus according to claim 1, wherein the control command input to the appliance through the first network is an input from the appliance of which front panel has been operated.

6. The gateway apparatus according to claim 1, further comprising command outputting means for outputting the control command produced by the appliance control command producing means.

7. The gateway apparatus according to claim 6, wherein the command outputting means is configured to transmit the control command to the appliance through the first network or to display the control command on an appliance directly connected to the gateway apparatus.

8. The gateway apparatus according to claim 1, further comprising appliance panel information updating means for updating the appliance panel information in accordance with changes in a panel state of the appliance.

9. The gateway apparatus according to claim 8, wherein the appliance panel information updating means is configured to update the appliance panel information in response to reception of a notification indicative of changes in the panel state of the appliance.

10. The gateway apparatus according to claim 8, wherein the appliance panel information updating means is configured to acquire the panel state of the appliance and to update the appliance panel information.

11. The gateway apparatus according to claim 1, further comprising gateway service list producing means for providing a remote control device with gateway service list information produced based on the appliance panel information, the gateway service list information being requested by the remote control device via the second network.

12. The gateway apparatus according to claim 11, wherein the gateway service list producing means is configured to produce the gateway service list information based on the

appliance panel information memorized by the appliance panel information inputting means, in response to the request from the remote control device.

5 13. The gateway apparatus according to claim 11, wherein the gateway service list producing means is configured to previously produce and store the gateway service list information based on the appliance panel information memorized by the appliance panel information inputting means, and to
10 provide the stored gateway service list information, in response to the request from the remote control device.

14. The gateway apparatus according to claim 11, wherein the gateway service list producing means is configured to
15 provide browser-displaying data as the gateway service list information, the browser-displaying data being according to a type of a set of tags supporting a browser installed in the remote control device.

20 15. The gateway apparatus according to claim 11, wherein the gateway service list producing means is configured to provide a program as the gateway service list information, the program being according to a type of a virtual machine (VM) supported by a browser installed in the remote control device.

25 16. The gateway apparatus according to claim 1, further comprising appliance operation status inputting means for preserving appliance operation status information including an operation table consisting of a current operation status of the
30 appliance, an operable operation at all statuses that the appliance is possible to take, and an status after the operation is performed,

wherein the appliance control command producing means determines whether or not it is possible to accept the input, by considering the appliance operation status information.

5 17. The gateway apparatus according to claim 16, wherein
priority control device ID information is recorded in the
appliance operation status information, and in cases where it
is required that a current status of the appliance accept an
operation for a button derived from a certain control device,
10 the appliance control command producing means records a control
device ID of the control device as the priority control device
ID information about the appliance operation status information,
determines whether or not it is possible to produce the control
command based on a control device ID of a control device sending
15 input information and the priority control device ID, and
produce a valid control command for a series of button
operations.

20 18. The gateway apparatus according to claim 17,
comprising command memorizing means, in cases where the
appliance has a status that exclusively permits acceptance of
an operation on a button at a certain control device, for
memorizing commands produced by the appliance control command
producing means and for transmitting to the appliance the
25 memorized commands at a memorized order, provided the status
is updated so as not to require the exclusive acceptance.

30 19. The gateway apparatus according to claim 1,
comprising use key information inputting means for preserving
use key information indicative of a condition to make the
appliance connected to the first network usable, wherein the
appliance control command producing means includes means for

determining whether or not it is possible to accept the input in consideration of the use key information.

20. The gateway apparatus according to claim 19, wherein
5 the use key information includes at least one of accepted time zone data of the input, location identification data, terminal identification data, and user identification data.

21. The gateway apparatus according to claim 19, wherein
10 the use key information corresponds to each state of the appliance operation status information, and the appliance control command producing means is configured to use the use key information corresponding to a current status as the use key information to determine whether or not it is possible to
15 accept the input.

22. The gateway apparatus according to claim 21, wherein
the gateway service list producing means is configured to produce gateway service list information to determine an
20 operational range coming from the remote control device, based on the use key information and the appliance operation status information, and transmit the produced information to the remote control device.

23. The gateway apparatus according to claim 1, further comprising contents managing means for memorizing a content list including contents IDs preserved by the device connected to the first network and numbers of use keys each corresponding to each contents ID and detecting an access from the appliance
25 to the contents, wherein the appliance control command producing means includes means for examining a right of use based on the use key in detecting the access and determining
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whether or not it is possible to access the contents.

24. The gateway apparatus according to claim 1, wherein the appliance panel information inputting means is configured to preserve, in addition to the appliance panel information, linked appliance information indicating, for each function of the appliance, an objective appliance to be operationally linked, the function, and identification data of a gateway apparatus to be linked, further comprising

input distributing means for, in cases where control command inputs are acquired from the control device or other gateway apparatuses, accepting only a command input directed to the gateway apparatus itself and delivering the remaining control command inputs to the other gateway apparatuses, thereby a linked operation being performed among a plurality of desired gateway apparatuses.

25. The gateway apparatus according to claim 24, wherein the control command inputs include information about distributing conditions, and the input distributing means includes means for deciding a situation that each gateway apparatus re-delivers the remaining command inputs to which gateway apparatus.

26. The gateway apparatus according to claim 1, connected via both a service server producing credit information and a network so as to acquire an input from a terminal together with the credit information, comprising accepting means for memorizing acceptance information in which a condition for allowing the input to be accepted and determining whether or not the input is possible to be accepted on the basis of the input and the acceptance information.

27. The gateway apparatus according to claim 26, wherein the acceptance information includes the condition specified every request input for acquiring the panel information and every input of the control command.

28. The gateway apparatus according to claim 26, wherein the condition of the acceptance information includes supply of information about certification of settlement issued by the service server, further comprising means for accepting only inputs that have been charged by the service server.

29. A remote control system in which a gateway apparatus is connected to an outside network built outside a home and to a home network connected to a home appliance, the home appliance being remote-controlled through the outside network and the remote control being mediated by the gateway apparatus, wherein

the gateway apparatus is configured to output appliance panel information of the home appliance to a control device to remote-control the home appliance through the outside network such that a figure approximating a front panel of the appliance is displayed on a screen of the control device, to convert an operation on the panel displayed on the screen of the control device into a control command to the home appliance, and to send the produced command to the home appliance such that the home appliance performs an operation corresponding to the operation done on the panel displayed by the control device.

30. The remote control system according to claim 29, wherein a control command for direct control of the home appliance is once inputted to the gateway apparatus, then sent the gateway apparatus to the home appliance.

31. The remote control system according to claim 29,
wherein information about an operated status of the home
appliance is sent to the gateway apparatus, wherein the gateway
5 apparatus is configured to hold information about a current
operated state of the home appliance.

32. The remote control system according to claim 29,
wherein the gateway apparatus includes means for determining
10 whether the current status of the home appliance is possible
to transit to a status commanded by control based on an operation
performed on a panel at the control device and means for making
the control command invalid when it is determined that the
transition is impossible.

33. The remote control system according to claim 29,
wherein a use condition to allow the control device to
remote-control the home appliance is set, wherein the gateway
15 apparatus includes means for stop the meditation unless the use
condition is met.

34. The remote control system according to claim 33,
wherein the use condition is set in association with the status
of the home appliance.

35. The remote control system according to claim 34,
wherein the gateway apparatus includes means for, according to
an operation on a panel at the control device, providing the
control device with appliance panel information explicitly
30 showing an next operational range of the panel operable by the
control device.

36. The remote control system according to claim 29,
wherein the gateway apparatus consist of a plurality of gateway
apparatuses each mediating with the home appliance consisting
of a plurality of home appliances, wherein each gateway
5 apparatus includes means for taking in a control command
directed to the gateway itself, from control commands issued
form the control device to the plurality of home appliances and
means for send the taken control command to a certain home
appliance to mediate so that the plurality of home appliances
10 perform a linked operation.

37. The remote control system according to claim 29,
wherein the gateway apparatus includes means for allowing the
mediation only when the control command input from the control
15 device includes a guarantee given by a service server.

38. The remote control system according to claim 29,
wherein the gateway apparatus includes means for allowing the
mediation only when the control command input from the control
20 device includes a certification for settlement of charges, the
certification being given by a service server.

39. A computer readable program used for a gateway
apparatus connected to at least one appliance through a first
25 network, the program providing the computer with the functions
of:

acquiring appliance panel information indicating on a
display screen panel parts of the appliance and an operational
range of the panel parts;

30 storing into a memory getaway apparatus information
indicating whether or not a control command input to the
appliance through either one of the first network or a second

network is received;

determining whether or not it is possible to accept the
input by making reference to the gateway apparatus information
when the control command input to the appliance is received
5 through either one of the first and second networks; and

producing a control command to the appliance based on the
appliance panel information when the acceptance is possible.